

APPENDIX D

BUILDING 71 HALLWAY AND ROOM AIR SAMPLING DATA REPORTED DURING THE YEARS 1953–1957

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A sampling program to determine plutonium air concentrations in rooms and hallways of Building 71 was also initiated at the time the facility began operations. The room and hallway air samplers were designed to obtain estimates of airborne activity to which workers might be exposed and to identify locations where releases from gloveboxes or other systems were occurring. The measured concentrations in rooms do not necessarily reflect average air concentrations, but they provide indications of the areas where substantial airborne contamination occurred and of the areas where airborne activity was found only infrequently.

Initially, the samples were collected only during the day shift. Later, as the work schedule increased, two- and three-shift sampling was implemented. The room air sampling data provide a means to estimate contributions of the ducts that were not sampled to the total plutonium loading of the main filter bank.

The room air samples were counted for total long-lived alpha activity and the Koval (1945) method was used to correct for naturally occurring radioactivity. Because the room air samples were initially collected daily, there were many samples to count each day and the decay time before the second count was limited. The sampling period was later changed to weekly. It was then possible to wait longer before the sample was recounted and the contribution of the natural radionuclides could be determined more accurately.

Tables in this appendix contain the room and hallway air sampling results reported for Building 71 for the period from June 1953 to the end of 1957. The air sampling data were reported using units of percent of maximum permissible level (MPL). At the time, the MPL for $^{239/240}\text{Pu}$ was $4 \times 10^{-12} \text{ } \mu\text{Ci cm}^{-3}$ (4 pCi m^{-3} or 8.88 disintegrations per minute per cubic meter [dpm m^{-3}]). The corresponding mass of airborne plutonium is approximately $5.6 \times 10^{-11} \text{ } \mu\text{g cm}^{-3}$ (56 pg m^{-3}).

The concentrations measured in hallways were generally lower than those in rooms where plutonium processing operations were conducted. It was not feasible to investigate the details of the reported concentrations and changes in them for the various rooms was not feasible. However, some general features of the data are noted below.

[Table D-1](#) contains the data for three hallways and for Rooms 125, 129, and 135. The functions of these rooms during the early years of operations are not clearly defined in building histories. They do not appear to have been used for major processing operation. The data in Table D-1 illustrate the effect of changing to a longer decay period for the naturally occurring radionuclides. The greater decay period meant that less natural activity would be present on the filter for the second count and that the assignment of the residual activity to plutonium was more reliable. Before May 1955, the plutonium concentrations were probably consistently overestimated in areas where concentrations were low (most hallways, for example). This change in counting procedure would not affect concentration estimates for areas where airborne plutonium concentrations were high.

Table D-1. Reported Air Concentrations^a for Hall 102, Room 108, Hall 112, Room 125, Room 129, and Room 135 in Building 71

Month	Reported average air concentration (percent of MPL)					
	Hall 102	Room 108	Hall 112	Room 125	Room 129	Room 135
Jun-53	7	6	14	11	12	11
Jul-53	12	9	13	16	17	20
Aug-53	17	9	12	19	24	20
Sep-53	18	10	15	25	29	24
Oct-53	22	19	16	35	41	42
Nov-53	21	15	13	36	28	27
Dec-53	14	7	7	22	21	18
Jan-54	13	10	17	125	31	23
Feb-54	12	7	10	17	17	15
Mar-54	9	6	6	14	19	9
Apr-54	10	5	7	12	15	9
May-54	11	8	13	15	17	11
Jun-54	13	6	11	17	19	11
Jul-54	14	6	12	16	20	10
Aug-54	13	8	14	14	18	12
Sep-54	15	10	10	17	23	18
Oct-54	15	7	15	18	31	11
Nov-54	16	12	16	21	29	13
Dec-54	14	7	11	17	34	13
Jan-55	14	7	10	16	27	12
Feb-55	12	7	7	15	24	12
Mar-55	12	4	9	14	21	13
Apr-55	12	4	10	16	25	9
May-55 ^b	2	2	1	17	23	1
Jun-55	3	1	1	23	29	1
Jul-55	3	4	1	27	28	1
Aug-55	2	0	1	35	36	0
Sep-55	1	0	0	30	38	1
Oct-55	11	7	8	26	43	10
Nov-55	2	0	0	23	26	1
Dec-55	1	0	0	23	39	0

Table D-1. (Continued)

Month	Reported average air concentration (percent of MPL)					
	Hall 102	Room 108	Hall 112	Room 125	Room 129	Room 135
Jan-56 ^b	3	0	1	26	32	1
Feb-56	4	0	4	14	25	0
Mar-56	5	0	0	16	52	0
Apr-56	2	1	1	34	41	1
May-56	2	1	1	31	54	1
Jun-56	6	3	14	27	45	3
Jul-56	6	1	3	38	50	1
Aug-56	3	1	1	58	58	4
Sep-56	12	2	3	37	156	5
Oct-56	5	1	1	42	62	3
Nov-56	5	1	1	26	32	2
Dec-56	6	1	2	36	46	4
Jan-57	4	0	5	34	50	4
Feb-57	5	6	6	48	54	6
Mar-57	3	2	1	33	42	10
Apr-57	3	1	1	34	39	1
May-57	6	2	4	35	40	11
Jun-57	5	0	1	204	204	19
Jul-57	2	0	1	68	72	2
Aug-57	2	0	1	66	44	2
< 10 Sep-57	8	1	1	42	40	2
> 23 Sep-57	67	27	52	62	62	55
Oct-57	20	10	17	30	29	31
Nov-57	8	2	3	20	20	3
Dec-57	2	1	2	28	24	1

^a Concentrations were reported as a percentage of the maximum permissible level (MPL), which was 4 pCi m⁻³ or 8.88 dpm m⁻³; the corresponding mass concentration is 56 pg m⁻³.

^b After May 1955, the contribution of natural radionuclides to the count was determined better (because of a longer decay period before recounting) and the estimated net concentrations of plutonium are more reliable.

[Table D-2](#) shows that the air concentrations were frequently high in the main processing areas, particularly Rooms 148 and 148A. The sampling program also found higher concentrations in Room 146, another processing area, although the value in the table for June 1957 does not reflect the accident that occurred there. Room 147 was a process control center and only low concentrations were measured there. Elevated concentrations in Rooms 149, 149A, and 149B (plutonium recovery operations) are shown in [Tables D-2](#) and [D-3](#). Also shown in [Table D-3](#) are results for analytical support laboratories (Rooms 151–153 and 156). Air exhausted from most these rooms was monitored routinely (see [Appendix C](#)).

Table D-2. Reported Air Concentrations^a for Room 141, Room 146, Room 147, Room 148, Room 148A, and Room 149 in Building 71

Month	Reported average air concentration (percent of MPL)					
	Room 141	Room 146	Room 147	Room 148	Room 148A	Room 149
Jun-53	10	8	6	11	b	9
Jul-53	12	9	7	13	b	14
Aug-53	17	14	9	76	b	24
Sep-53	17	19	8	462	953	40
Oct-53	20	20	7	74	29	36
Nov-53	25	19	9	30	36	27
Dec-53	19	27	8	113	8076	24
Jan-54	10	14	6	25	308	21
Feb-54	10	18	7	57	b	17
Mar-54	7	15	5	86	b	20
Apr-54	9	12	5	15	b	16
May-54	7	12	7	20	8	22
Jun-54	9	11	6	16	b	17
Jul-54	14	12	10	17	30	22
Aug-54	9	16	6	22	10	14
Sep-54	10	51	6	16	18	21
Oct-54	9	18	5	32	356	14
Nov-54	219	45	5	49	63	30
Dec-54	12	67	5	23	254	21
Jan-55	41	38	4	29	5408	38
Feb-55	7	49	4	26	464	24
Mar-55	7	21	4	35	506	45
Apr-55	116	128	6	56	2779	127
May-55 ^c	15	31	4	33	189	12
Jun-55	12	114	1	39	143	73
Jul-55	13	62	1	114	407	64
Aug-55	25	28	0	105	714	39
Sep-55	42	266	1	98	947	32
Oct-55	10	26	2	95	325	22
Nov-55	11	49	1	50	248	18
Dec-55	14	54	0	15	43995	19

Table D-2. (Continued)

Month	Reported average air concentration (percent of MPL)					
	Room 141	Room 146	Room 147	Room 148	Room 148A	Room 149
Jan-56 ^c	12	565	0	23	965	20
Feb-56	11	18	0	62	2562	87
Mar-56	27	33	0	123	1100	68
Apr-56	13	39	1	80	5515	43
May-56	14	85	1	55	1937	56
Jun-56	20	72	3	96	3857	43
Jul-56	23	1434	1	2599	8725	189
Aug-56	21	324	2	178	3182	46
Sep-56	23	48	1	1169	1610	51
Oct-56	20	354	1	88	1984	44
Nov-56	26	132	1	40	699	33
Dec-56	16	496	1	590	1414	69
Jan-57	18	99	1	466	354	68
Feb-57	22	1392	3	617	780	77
Mar-57	21	225	1	242	1110	105
Apr-57	57	95	1	212	1649	84
May-57	18	73	3	103	4944	65
Jun-57	23	65 ^d	1	56	4556	133
Jul-57	26	283	1	70	1394	53
Aug-57	25	126	1	97	1342	52
< 10 Sep-57	21	48	1	75	22910	58
> 23 Sep-57	^e	700	^e	496	^e	157
Oct-57	41	326	14	84	641	84
Nov-57	26	34	5	41	4917	29
Dec-57	28	42	5	34	112	32

^a Concentrations were reported as a percentage of the maximum permissible level (MPL), which was 4 pCi m⁻³ or 8.88 dpm m⁻³; the corresponding mass concentration is 56 pg m⁻³.

^b No results were reported for this period.

^c After May 1955, the contribution of natural radionuclides to the count was determined better (because of a longer decay period before recounting) and the estimated net concentrations of plutonium are more reliable.

^d Sample results for day of accident were apparently lost.

^e No results were reported for this period.

Table D-3. Reported Air Concentrations^a for Room 149A, Room 149B, Hall 151, Room 152, Room 153, and Room 156 in Building 71

Month	Reported average air concentration (percent of MPL)					
	Room 149A	Room 149B	Hall 151	Room 152	Room 153	Room 156
Jun-53	b	b	b	7	12	9
Jul-53	b	b	b	29	19	17
Aug-53	b	b	b	35	19	56
Sep-53	b	b	b	22	13	16
Oct-53	b	b	b	23	18	12
Nov-53	b	b	b	24	18	11
Dec-53	b	b	b	18	30	17
Jan-54	b	b	b	23	11	10
Feb-54	b	b	b	21	16	12
Mar-54	b	b	b	18	11	10
Apr-54	b	b	b	15	9	10
May-54	b	b	b	18	16	9
Jun-54	b	b	b	23	14	14
Jul-54	b	b	b	24	24	17
Aug-54	b	b	b	23	16	10
Sep-54	b	b	b	22	18	12
Oct-54	b	b	b	22	17	11
Nov-54	b	b	b	24	19	13
Dec-54	b	b	b	23	19	15
Jan-55	b	b	b	21	18	12
Feb-55	b	b	b	21	21	12
Mar-55	b	b	b	24	19	12
Apr-55	b	b	b	25	35	15
May-55 ^c	b	b	b	16	36	13
Jun-55	b	b	b	26	37	23
Jul-55	b	b	b	30	39	30
Aug-55	b	b	b	35	49	43
Sep-55	b	b	b	23	39	44
Oct-55	b	b	b	24	53	46
Nov-55	b	b	b	23	43	63
Dec-55	b	b	b	22	16	32

Table D-3. (Continued)

Month	Reported average air concentration (percent of MPL)					
	Room 149A	Room 149B	Hall 151	Room 152	Room 153	Room 156
Jan-56 ^c	b	b	b	22	27	74
Feb-56	463	395	b	29	37	43
Mar-56	144	236	b	28	33	50
Apr-56	144	480	b	33	56	47
May-56	142	303	b	37	45	51
Jun-56	168	62	b	34	104	45
Jul-56	124	148	b	41	42	80
Aug-56	162	51	b	54	52	195
Sep-56	1910	1919	b	38	36	47
Oct-56	182	274	b	49	58	134
Nov-56	154	443	b	39	36	91
Dec-56	162	137	b	43	36	44
Jan-57	371	72	b	50	46	43
Feb-57	186	262	b	56	54	54
Mar-57	684	2025	b	53	38	29
Apr-57	586	4914	141	32	50	31
May-57	190	361	198	46	34	25
Jun-57	64	54	118	27	40	59
Jul-57	79	128	b	26	31	20
Aug-57	874	237	b	26	34	20
< 10 Sep-57	476	940	150	27	38	97
> 23 Sep-57	3288	5168	b	494	304	663
Oct-57	915	579	188	102	135	128
Nov-57	190	75	31	14	53	46
Dec-57	4012	1508	b	11	34	11

^a Concentrations were reported as a percentage of the maximum permissible level (MPL), which was 4 pCi m⁻³ or 8.88 dpm m⁻³; the corresponding mass concentration is 56 pg m⁻³.

^b No results were reported for this period.

^c After May 1955, the contribution of natural radionuclides to the count was determined better (because of a longer decay period before recounting) and the estimated net concentrations of plutonium are more reliable.

Tables [D-4](#) and [D-5](#) contain the measured air concentrations for Rooms 179, 179A, 180, and 180A and adjacent rooms that were most affected by the fire in September 1957. These were all in the development area. Contamination of these areas following the fire was substantial and cleanup was not completed until after the end of 1957. Decontamination of Room 180 was not completed until several years after the fire.

Air concentration data from some rooms (158, 159, 160, 164, and 166) from the analytical support area are also included in [Table D-4](#). The data show that these rooms were also contaminated by the 1957 fire, but they were cleaned up before the end of the year.

Table D-4. Reported Air Concentrations^a for Room 158, Room 159, Room 160, Room 164, Room 166, and Room 179 in Building 71

Month	Reported average air concentration (percent of MPL)					
	Room 158	Room 159	Room 160	Room 164	Room 166	Room 179
Jun-53	5	8	9	9	10	4
Jul-53	37	17	18	26	16	4
Aug-53	47	24	24	53	18	47
Sep-53	36	15	7	40	11	7
Oct-53	26	13	10	22	15	8
Nov-53	30	16	15	24	10	56
Dec-53	25	13	7	19	11	9
Jan-54	29	15	9	21	7	7
Feb-54	23	12	9	17	18	7
Mar-54	22	10	7	16	8	19
Apr-54	20	10	7	17	7	9
May-54	21	10	6	17	9	8
Jun-54	37	15	11	24	11	7
Jul-54	39	16	8	32	16	7
Aug-54	30	15	9	29	9	16
Sep-54	35	25	9	27	9	7
Oct-54	28	12	8	20	8	6
Nov-54	29	14	9	25	13	14
Dec-54	32	13	7	24	10	35
Jan-55	27	10	6	21	10	6
Feb-55	32	16	8	22	14	12
Mar-55	29	16	11	19	9	13
Apr-55	37	17	12	27	12	102
May-55 ^b	42	19	13	15	10	8
Jun-55	60	28	20	22	14	8
Jul-55	51	30	20	28	18	6
Aug-55	88	33	26	30	22	23
Sep-55	42	30	32	26	45	66
Oct-55	35	28	28	18	29	17
Nov-55	38	22	25	26	14	38
Dec-55	32	23	34	37	17	11

Table D-4. (Continued)

Month	Reported average air concentration (percent of MPL)					
	Room 158	Room 159	Room 160	Room 164	Room 166	Room 179
Jan-56 ^b	39	30	41	42	20	5
Feb-56	43	33	42	34	18	11
Mar-56	45	37	54	29	24	9
Apr-56	43	37	44	29	32	12
May-56	50	37	45	44	27	22
Jun-56	50	44	53	35	54	38
Jul-56	61	47	58		77	18
Aug-56	72	45	90	59	42	19
Sep-56	54	32	42	58	28	16
Oct-56	60	45	57	47	30	23
Nov-56	58	35	75	90	29	12
Dec-56	54	35	52	62	27	16
Jan-57	62	44	65	61	45	32
Feb-57	102	75	109	62	31	24
Mar-57	52	33	39	53	75	15
Apr-57	33	19	25	44	57	11
May-57	34	24	30	27	168	10
Jun-57	37	26	30	27	43	6
Jul-57	37	28	31	55	36	5
Aug-57	34	23	40	24	35	9
< 10 Sep-57	40	28	32	20	43	9
> 23 Sep-57	725	678	3508	1212	6209	c
Oct-57	144	138	118	3248	895	c
Nov-57	17	202	15	11	16	c
Dec-57	13	12	9	8	44	c

^a Concentrations were reported as a percentage of the maximum permissible level (MPL), which was 4 pCi m⁻³ or 8.88 dpm m⁻³; the corresponding mass concentration is 56 pg m⁻³.

^b After May 1955, the contribution of natural radionuclides to the count was determined better (because of a longer decay period before recounting) and the estimated net concentrations of plutonium are more reliable.

^c No results were reported for this period.

Table D-5. Reported Air Concentrations^a for Room 179A, Room 180, Room 180A, Room 181, Room 182, and Room 186 in Building 71

Month	Reported average air concentration (percent of MPL)					
	Room 179A	Room 180	Room 180A	Room 181	Room 182	Room 186
Jun-53	6	7	6	6	6	6
Jul-53	7	7	7	7	14	18
Aug-53	12	10	8	8	15	17
Sep-53	8	9	7	9	21	20
Oct-53	7	9	8	10	19	17
Nov-53	7	9	7	14	21	18
Dec-53	8	5	5	10	16	14
Jan-54	9	7	5	9	15	11
Feb-54	9	18	6	7	21	21
Mar-54	6	9	5	9	17	11
Apr-54	8	9	4	50	17	11
May-54	12	22	5	7	16	14
Jun-54	10	7	5	8	50	13
Jul-54	8	7	4	7	14	13
Aug-54	6	6	3	8	18	18
Sep-54	5	7	3	8	16	21
Oct-54	4	5	3	117	15	29
Nov-54	7	10	5	3036	22	1647
Dec-54	9	9	4	116	16	28
Jan-55	7	38	26	2200	22	33
Feb-55	7	16	26	578	19	20
Mar-55	9	18	9	8	35	18
Apr-55	9	8	4	15	82	25
May-55 ^b	7	10	8	12	18	32
Jun-55	9	19	7	12	38	32
Jul-55	8	13	17	47	29	29
Aug-55	85	16	6	62	40	47
Sep-55	331	23	38	97	53	33
Oct-55	5	12	8	14	229	39
Nov-55	3	16	15	26	31	176
Dec-55	4	16	9	20	24	30

Table D-5. (Continued)

Month	Reported average air concentration (percent of MPL)					
	Room 179A	Room 180	Room 180A	Room 181	Room 182	Room 186
Jan-56 ^b	5	1016	6	11	24	25
Feb-56	6	24	7	12	54	142
Mar-56	8	58	16	14	36	29
Apr-56	19	210	8	97	36	23
May-56	11	22	9	21	31	26
Jun-56	9	27	8	80	44	37
Jul-56	10	29	95	51	58	45
Aug-56	14	48	18	30	35	32
Sep-56	18	37	27	47	36	31
Oct-56	8	516	17	32	40	780
Nov-56	17	36	19	30	36	178
Dec-56	11	34	31	61	63	40
Jan-57	12	24	16	23	26	38
Feb-57	16	26	14	38	34	61
Mar-57	11	22	23	29	49	78
Apr-57	9	34	16	16	36	55
May-57	4	22	13	14	36	82
Jun-57	6	26	21	16	47	42
Jul-57	5	27	9	18	40	48
Aug-57	9	82	16	22	39	45
< 10 Sep-57	7	30	15	72	26	42
> 23 Sep-57	c	c	c	c	c	c
Oct-57	c	c	c	c	c	c
Nov-57	c	c	c	c	c	c
Dec-57	c	c	c	c	c	c

^a Concentrations were reported as a percentage of the maximum permissible level (MPL), which was 4 pCi m⁻³ or 8.88 dpm m⁻³; the corresponding mass concentration is 56 pg m⁻³.

^b After May 1955, the contribution of natural radionuclides to the count was determined better (because of a longer decay period before recounting) and the estimated net concentrations of plutonium are more reliable.

^c No results were reported for this period.

Tables [D-6](#) and [D-7](#) contain air sampling results primarily for first floor hallways and for rooms on the second floor of Building 71, where the building utilities and the filtration systems were located. Both areas had higher airborne plutonium concentrations in the post-fire period. Other rooms from the second floor ([Table D-8](#)) show similarly elevated concentrations after the fire. [Table D-8](#) also includes results of measurements from Building 74, the waste processing facility.

Table D-6. Reported Air Concentrations^a for Room 187, Hall 191, Hall 192, Hall 193, Hall 194, and Hall 195 in Building 71

Month	Reported average air concentration (percent of MPL)					
	Room 187	Hall 191	Hall 192	Hall 193	Hall 194	Hall 195
Jun-53	b	6	6	11	10	6
Jul-53	b	11	b	7.5	16	8
Aug-53	b	24	15	16	24	14
Sep-53	b	10	19	18	15	12
Oct-53	b	26	14	13	12	10
Nov-53	b	27	19	13	13	10
Dec-53	b	16	22	15	12	10
Jan-54	b	21	11	7	11	11
Feb-54	b	11	16	16	19	16
Mar-54	b	11	12	9	12	5
Apr-54	b	14	11	7	10	5
May-54	b	18	18	12	10	7
Jun-54	b	16	13	10	14	7
Jul-54	b	19	15	12	18	37
Aug-54	b	23	10	11	16	9
Sep-54	b	32	15	18	16	b
Oct-54	b	23	23	10	14	6
Nov-54	b	37	14	26	16	388
Dec-54	b	27	10	11	14	9
Jan-55	b	26	17	6	16	8
Feb-55	b	31	14	8	15	12
Mar-55	b	27	14	10	15	5
Apr-55	b	26	13	8	11	9
May-55 ^c	b	1	8	3	4	2
Jun-55	b	2	10	32	3	2
Jul-55	b	3	25	2	6	2
Aug-55	b	3	8	3	4	1
Sep-55	b	7	21	14	41	2
Oct-55	b	7	13	6	8	2
Nov-55	b	3	5	3	4	2
Dec-55	b	6	11	2	3	3

Table D-6. (Continued)

Month	Reported average air concentration (percent of MPL)					
	Room 187	Hall 191	Hall 192	Hall 193	Hall 194	Hall 195
Jan-56 ^c	b	1	10	2	4	1
Feb-56	b	3	5	7	4	2
Mar-56	b	3	5	1	5	4
Apr-56	b	2	5	2	5	2
May-56	b	3	9	1	14	2
Jun-56	b	2	12	2	7	4
Jul-56	b	7	17	8	11	15
Aug-56	b	3	13	4	11	8
Sep-56	b	4	11	3	9	5
Oct-56	718	3	19	16	17	3
Nov-56	380	4	9	5	7	3
Dec-56	165	5	10	4	6	6
Jan-57	623	4	11	19	8	13
Feb-57	666	14	44	37	17	5
Mar-57	240	3	16	6	8	3
Apr-57	118	3	10	5	7	10
May-57	34	12	13	5	13	5
Jun-57	86	2	45	12	22	12
Jul-57	b	2	7	1	5	2
Aug-57	b	2	3	1	5	2
< 10 Sep-57	b	2	9	1	12	1
> 23 Sep-57	b		34	b	935	194
Oct-57	b	223	194	35	558	67
Nov-57	b	39	13	8	15	11
Dec-57	b	20	14	15	17	11

^a Concentrations were reported as a percentage of the maximum permissible level (MPL), which was 4 pCi m⁻³ or 8.88 dpm m⁻³; the corresponding mass concentration is 56 pg m⁻³.

^b No results were reported for this period.

^c After May 1955, the contribution of natural radionuclides to the count was determined better (because of a longer decay period before recounting) and the estimated net concentrations of plutonium are more reliable.

Table D-7. Reported Air Concentrations^a for Hall 196, Hall 197, Room 233, Room 235, Room 240, and Room 247 in Building 71

Month	Reported average air concentration (percent of MPL)					
	Hall 196	Hall 197	Room 233	Room 235	Room 240	Room 247
Jun-53	5	4	^b	10	9	11
Jul-53	6	8	25	20	13	29
Aug-53	9	9	27	30	15	40
Sep-53	12	7	21	27	18	28
Oct-53	9	8	24	29	17	27
Nov-53	21	9	19	23	22	36
Dec-53	7	5	22	26	12	19
Jan-54	8	4	21	34	21	21
Feb-54	5	5	11	14	14	14
Mar-54	11	4	13	12	6	11
Apr-54	5	2	21	18	6	12
May-54	6	2	21	17	10	14
Jun-54	6	4	17	19	8	15
Jul-54	8	3	24	24	11	11
Aug-54	10	8	25	22	16	15
Sep-54	10	4	37	33	10	13
Oct-54	8	5	15	15	12	17
Nov-54	9	6	22	21	13	15
Dec-54	19	5	28	10	8	30
Jan-55	23	11	25	24	12	22
Feb-55	11	5	33	97	9	30
Mar-55	12	13	20	19	10	19
Apr-55	11	6	26	22	8	18
May-55 ^c	4	5	2	3	2	25
Jun-55	3	3	3	3	1	26
Jul-55	4	3	10	30	4	36
Aug-55	8	5	8	8	3	34
Sep-55	26	9	6	9	4	39
Oct-55	43	20	21	20	12	29
Nov-55	9	8	5	2	0	29
Dec-55	3	5	5	2	0	26

Table D-7. (Continued)

Month	Reported average air concentration (percent of MPL)					
	Hall 196	Hall 197	Room 233	Room 235	Room 240	Room 247
Jan-56 ^c	4	4	3	3	1	27
Feb-56	12	8	3	3	0	24
Mar-56	13	9	3	8	0	24
Apr-56	5	9	69	94	3	52
May-56	11	5	9	14	1	36
Jun-56	16	18	7	8	1	52
Jul-56	21	22	11	28	3	356
Aug-56	16	22	30	16	1	60
Sep-56	67	8	17	29	1	56
Oct-56	375	84	8	10	1	48
Nov-56	62	49	15	31	1	41
Dec-56	20	12	60	6	1	30
Jan-57	23	9	18	26	4	44
Feb-57	22	27	84	14	2	65
Mar-57	81	143	8	6	1	37
Apr-57	14	12	29	7	1	23
May-57	8	9	13	27	4	20
Jun-57	13	5	23	57	3	28
Jul-57	17	3	14	10	1	29
Aug-57	12	2	5	3	1	29
< 10 Sep-57	30	1	4	5	2	15
> 23 Sep-57	^c	^c	361	372	671	318
Oct-57	2258	3413	70	66	61	131
Nov-57	31	22	67	60	26	36
Dec-57	16	11	31	34	25	36

^a Concentrations were reported as a percentage of the maximum permissible level (MPL), which was 4 pCi m⁻³ or 8.88 dpm m⁻³; the corresponding mass concentration is 56 pg m⁻³.

^b No results were reported for this period.

^c After May 1955, the contribution of natural radionuclides to the count was determined better (because of a longer decay period before recounting) and the estimated net concentrations of plutonium are more reliable.

**Table D-8. Reported Air Concentrations^a for Room 248, Room 249,
and Room 283 in Building 71 and for Building 74**

Month	Reported average air concentration (percent of MPL)			
	Room 248	Room 249	Room 283	Building 74
Jun-53	10	11	9	8
Jul-53	18	30	17	15
Aug-53	25	32	31	b
Sep-53	18	25	36	b
Oct-53	22	27	34	50
Nov-53	27	35	35	34
Dec-53	28	26	18	b
Jan-54	24	28	20	b
Feb-54	15	17	14	b
Mar-54	11	13	13	22
Apr-54	13	13	17	65
May-54	16	18	17	30
Jun-54	12	22	17	19
Jul-54	18	28	27	85
Aug-54	17	27	26	65
Sep-54	25	31	18	75
Oct-54	12	16	24	190
Nov-54	18	21	16	393
Dec-54	10	25	16	455
Jan-55	24	24	17	118
Feb-55	39	52	12	118
Mar-55	18	20	22	55
Apr-55	36	21	19	288
May-55 ^c	15	19	1	289
Jun-55	20	28	1	72
Jul-55	26	41	4	52
Aug-55	25	45	3	50
Sep-55	29	35	4	30
Oct-55	20	27	18	22
Nov-55	21	26	0	42
Dec-55	23	23	0	38

Table D-8. (Continued)

Month	Reported average air concentration (percent of MPL)			
	Room 248	Room 249	Room 283	Building 74
Jan-56 ^c	20	24	1	38
Feb-56	19	20	0	409
Mar-56	17	20	0	135
Apr-56	63	78	1	108
May-56	26	48	1	114
Jun-56	30	45	1	95
Jul-56	39	49	2	66
Aug-56	36	44	1	94
Sep-56	40	46	1	269
Oct-56	28	42	1	166
Nov-56	99	37	2	114
Dec-56	34	38	1	213
Jan-57	33	56	1	163
Feb-57	48	73	1	105
Mar-57	26	34	0	81
Apr-57	17	29	2	139
May-57	19	18	6	191
Jun-57	17	44	1	107
Jul-57	31	45	1	119
Aug-57	20	37	1	453
< 10 Sep-57	33	28	2	201
> 23 Sep-57	2024	868	1247	108
Oct-57	50	201	252	112
Nov-57	34	248	26	318
Dec-57	26	59	26	1663

^a Concentrations were reported as a percentage of the maximum permissible level (MPL), which was 4 pCi m⁻³ or 8.88 dpm m⁻³; the corresponding mass concentration is 56 pg m⁻³.

^b No results were reported for this period.

^c After May 1955, the contribution of natural radionuclides to the count was determined better (due to a longer decay period prior to recounting) and the estimated net concentrations of plutonium are more reliable.

REFERENCE

Koval, G. 1945. *Determination of Particulate Airborne Long-lived Activity*. Report MDDC-1503. Clinton Laboratories.